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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,708	03/12/2002	Takayuki Toyoshima	13630-004US1	2620

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EXAMINER	
AMARI, ALESSANDRO V	
ART UNIT	PAPER NUMBER
2872	

DATE MAILED: 04/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/070,708	TOYOSHIMA ET AL.	
	Examiner	Art Unit	
	Alessandro V. Amari	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11,14 and 15* is/are rejected.

7)☒ Claim(s) *12 and 13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Previous Claim Rejections - 35 USC § 103

1. The previous art rejection of Scobey et al US 6,115,401 has been withdrawn in light of new prior art rejection. The Examiner regrets any inconvenience caused to the Applicant.

Priority

2. Acknowledgment is again made of applicant's claim for foreign priority based on an application filed in Japan on 14 July 2000 and 13 September 2000. In the latest response, Applicants have provided a copy of the Form PCT/IB/304, however, this does not satisfy 35 USC 119(b)(3) requirement which requires copies of the certified copies of the Japan 2000-214379 and Japan 2000-278268.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 2, 6-10, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jayaraman et al US Patent 6,122,417 in view of Scobey et al US Patent 6,115,401.

In regard to claims 1 and 14, Jayaraman et al teaches (see Figures 1-5) an optical element having wavelength selectivity comprising a lens array (14, 40) having a first end face and a plurality of lenses arranged on the first end face; and a multilayered

film filter (12) which is formed on the first end face of the lens array and includes high-refractive index dielectric layers and low refractive index dielectric layers laminated alternately as described in column 3, lines 40-67 and column 4, lines 1-60.

Regarding claim 2, Jayaraman et al teaches that the plurality of lenses are aligned in a line as shown in Figures 1-5 and that the film thickness of the multi-layered film filter changes from the first end of the plurality of lenses to the second end as shown in Figures 1-5.

Regarding claim 6, Jayaraman et al teaches that the lens array has a second end face facing the first end face and the optical element further has a light emitting device formed on the second face for emitting light toward the multilayered film filter via individual lenses of the lens array as shown in Figures 3 and 5.

Regarding claim 7, Jayaraman et al teaches that the light emitting device is integral with the lens array as shown in Figures 3 and 5.

Regarding claim 8, Jayaraman et al teaches that the light emitting device includes a plurality of light sources provided in association with individual lenses of the lens array as shown in Figures 3 and 5.

However, in regard to claims 1 and 2, Jayaraman does not teach that the film thickness continuously changes in accordance with the individual positions of the lenses or that the film thickness linearly changes from the first end toward the second end.

In regard to claims 1 and 2, Scobey et al does teach that the film thickness continuously changes in accordance with the individual positions of the lenses and that

the film thickness linearly changes from the first end toward the second end as described in column 14, lines 37-46.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the linearly variable filter as taught by Scobey et al in the device of Jayaraman et al in order to reduce the thickness of the film layers thus simplifying production. It should also be noted that linear variable filters are considered art recognized equivalents of stepped Fabry-Perot filters as utilized in Jayaraman et al.

Regarding claim 9, Jayaraman et al teaches (see Figures 1-5) that the lens array has a second end face facing the first end face and that the optical element further has a plurality of light receiving elements (44, 92) for receiving a plurality of optical signals having different center wavelengths obtained by demultiplexing input light by the multi-layered film filter via individual lenses of the lens array.

However, in regard to claims 9 and 14, Jayaraman et al does not teach that the light receiving elements formed on the second end face and in regard to claims 10 and 15, that the plurality of light receiving elements are integral with the lens array.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have the light receiving elements formed integrally with the lens array, since it has been held that making in one piece an article which has formerly been formed in multiple pieces involves only routine skill in the art. One would have been motivated to form the light receiving elements integral with the lens array in order to reduce stray reflections so as to achieve an overall improvement in optical coupling. *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965)

5. Claims 3, 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jayaraman et al US Patent 6,122,417 in view of Scobey et al US Patent 6,115,401 and further in view of Anthon US Patent 6,057,925.

Regarding claims 3, 4 and 5, Jayaraman et al in view of Scobey et al teaches the invention as set forth above and in regard to claim 5, that the plurality of microlenses protrude from the substrate as shown in Figures 1-5, but does not teach that the lens array is a rod lens array including a plurality of rod lenses or regarding claim 4, that the lens array is a gradient index planar microlens on a single substrate and a plurality of microlenses formed in a line on the substrate.

Regarding claims 3, 4, and 5, Anthon does teach that the lens array is a rod lens array and that the lens array is a gradient index planar microlens on a single substrate and a plurality of microlenses formed in a line on the substrate and that the plurality of microlenses protrude from the substrate as described in column 4, lines 4-8.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the rod and the gradient index lenses of Anthon in the device of Jayaraman et al in view of Scobey et al in order to improve the light coupling to the light receiving elements.

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jayaraman et al US Patent 6,122,417 in view of Seddon et al US Patent 5,872,655.

In regard to claim 11, Jayaraman et al teaches a method of manufacturing an optical element having wavelength selectivity comprising a step of preparing a lens array having a first end face and a plurality of lenses arranged on the first end face as

shown in Figures 1-5 and as described in column 3, lines 41-59 and teaches the step of directly forming a multi-layered film filter on the first end face of the lens array as described in column 5, lines 12-36.

However, Jayaraman et al does not teach that the multilayered film is formed by physical vapor deposition in such a way that the film thickness continuously changes in accordance with the positions of the plurality of the lenses.

In regard to claim 11, Seddon et al does teach that the multilayered film is formed by physical vapor deposition in such a way that the film thickness continuously changes in accordance with the positions of the plurality of the lenses as described in column 3, lines 12-18 and column 5, lines 12-46.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the steps of Seddon et al in the manufacture of the optical device of Jayaraman et al in order to reduce leakage as described in column 3, lines 12-39 of Seddon et al.

Allowable Subject Matter

7. Claims 12 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claim 12 is allowable over the prior art for at least the reason that the prior art fails to teach or reasonably suggest, "step of arranging the lens array in such a way that the first end face of the lens array is inclined with respect to the evaporation source or

target" as set forth in the claimed combination. Claim 13 is also allowable based on its dependence on claim 12.

The prior art of record, Jayaraman et al and Seddon et al teach a method of manufacturing the optical element including a lens array having a first end face and a plurality of lenses arranged on the first end face forming a multi-layered film filter on the first end face of the lens array such that the multilayered film is formed by physical vapor deposition in such a way that the film thickness continuously changes but does not teach the step of arranging the lens array in such a way that the first end face of the lens array is inclined with respect to the evaporation source or target and there is no motivation or teaching to modify this difference as derived.

Response to Arguments

9. Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new ground(s) of rejection.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alessandro V. Amari whose telephone number is (571) 272-2306. The examiner can normally be reached on Monday-Friday 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ava
14 April 2004

MARK A. ROBINSON
PRIMARY EXAMINER